

Science Standards Kindergarten

Life Science

1. Know the five senses and how they help us.

- A. Know about seeing.
- B. Know about smelling.
- C. Know about touching.
- D. Know about hearing.
- E. Know about tasting.
- F. Know about the visible parts of the body (head, arms, shoulders, legs, knees, trunk, toes, and fingers.)

2. Know about plants.

- A. Know different common plants (trees, flowers, grass, local plants, etc.)
- B. Know where common plants grow.
- C. Know about caring for common plants.

3. Know about butterflies.

- A. Observe the life cycle of the caterpillar.
- B. Know about the four stages of the life cycle.
- C. Know that the life cycle can be compared with the cycle of the pumpkin or apple.

Earth Science

1. Know our physical environment (air, land, and water)

- A. Know how air is all around us.
- B. Know how the earth is made up of land and water.
- C. Know how we need to care for the air, land and water.
- D. Know the names and the order of the four seasons.
- E. Know the weather in each season in the area where you live.

Physical Science

1. Know about balancing and weighing.

- A. Know balance is affected by the amount of weight and position of weight.
- B. Know weight of an object is not determined by its size.
- C. Know how to perform simple experiments with balance and weight.
- D. Know how to communicate ideas, observations and experiences through drawing and discussion.
- E. Practice using strategies for comparing and weighing to solve problems.

Kindergarten is looking for a physical science unit and a simple lesson about germs.

Science Standards First Grade

1. Identify and classify animals.

- A. Observe, describe and compare the structures of a variety of common animals: fish (goldfish and guppies); snails (land and pond); earthworms (red worms and night crawlers); isopods (pill bugs and sow bugs.)
- B. Observe and describe the interactions of these animals with their surroundings.
- C. Classify animals as mammals, birds, fish, reptiles, amphibians, and insects (name some common characteristics of each.)

2. Understand the solar system is made of many bodies.

- A. Know the sun is a star at the center of our solar system.
- B. Know the number of planets that orbit the sun.
- C. Know one major characteristic of each planet.
- D. Identify the phases of our moon (new, quarter, half, gibbous, full) and that the moon orbits Earth.
- E. Know that groups of stars are called constellations.

3. Know about common dinosaurs.

- A. Know there were three periods of dinosaurs and different kinds of dinosaurs lived during each period.
- B. Identify common dinosaurs that lived during each period.
- C. Identify characteristics of common dinosaurs (teeth, claws, spines, etc.)
- D. Be aware of how fossils are formed and that they give us information about the past.

4. Understand how magnets work.

- A. Know types of magnets (horseshoe U-shaped, bar, and circle.)
- B. Know that the magnetic field is stronger at the poles.
- C. Know that opposite poles attract and like poles repel.
- D. Know how to take care of magnets.
- E. Know that magnetism is a force (push and pull.)

First grade is looking for a lesson on gravity.

Science Standards Second Grade

1. Understand how plants grow. (Life Science)

- A. Identify the structures of plants: roots, stems, leaves, flowers and fruits.
- B. Identify the basic needs of plants: air, water, soil, and sunlight.
- C. Observe and describe changes that occur as plants grow.
- D. Identify foods that are obtained from different plant parts.

2. Understand how air and weather affect our lives. (Earth Science)

- A. Investigate some of the basic properties of air: air takes up space, air can be compressed and air exerts pressure.
- B. Read a Celsius and Fahrenheit thermometer.
- C. Identify things that make up the weathers: sun, water, wind, air.
- D. Know how weather affects plants, animals, and people.
- E. Identify three main types of clouds: cumulus, cirrus, stratus.

3. Know characteristics of various plant and animal habitats. (Life Science)

- A. Understand the components of habitats (food, water, space, shelter.)
- B. Identify characteristics of a desert environment.
- C. Identify characteristics of a woods environment.
- D. Identify characteristics of a pond environment.
- E. Identify characteristics of a ocean environment.
- F. Be aware of ways we can care for our environment.

4. Know that force makes things move. (Physical Science)

- A. Identify force as push or pull.
- B. Identify the six basic simple machines:
lever, wheel and axle, pulley, inclined plane, wedge, screw.

Science Standards Third Grade

1. Understand ecosystems and how plants and animals adapt to survive.

- A. Know what animals need to survive (reproduction, food, shelter, water, survival techniques.)
- B. Know what plants need to survive (water, sun, nutrients, and pollination.)
- C. Be able to describe an ecosystem.
- D. Know how communities affect each other.
- E. Know how communities depend on each other.
- F. Know how adaptations help animals and plants survive.
- G. Know and give examples of behavioral adaptations (migration and hibernation.)

2. Understand characteristics of sound.

- A. Know how sound is transmitted and received.
- B. Know about pitch and volume.
- C. Know how distance affects sound.
- D. Be able to identify how sound travels through different materials.

3. Be able to observe, classify and explain properties, states and changes of matter.

- A. Know the three states of matter.
- B. Know how matter can change.
- C. Know the properties of each state of matter.

4. Demonstrate knowledge of earth science concepts related to properties of earth materials (pebbles, sand, and silt.)

- A. Describe and sort earth materials based on properties: size and use.
- B. Develop vocabulary associated with the four seasons.
- C. Identify a variety of uses of various earth materials.
- D. Compare properties of different earth materials.
- E. Investigate properties of earth materials: pebbles, gravel, sand, clay and silt.
- F. Explore ways that earth materials are used.

Third grade is searching for lessons on heredity.

Third grade is adding a unit on the ear to the health curriculum.

Science Standards Fourth Grade

1. Understand food chains and food webs.

- A. Be able to distinguish between producers, consumers, and decomposers.
- B. Know about an ocean food chain.
- C. Know about a land food chain.
- D. Know the interdependence of a food chain.
- E. Know how nature and people affect a food web.

2. Understand the characteristics and uses of six simple machines.

- A. Know characteristics and uses of the inclined plane and wedge.
- B. Know characteristics and uses of the screw.
- C. Know characteristics and uses of the pulley.
- D. Know characteristics and uses of the lever.
- E. Know characteristics and uses of the wheel and axle.
- F. Know how simple machines make work easier.
- G. Be able to identify simple machines within a complex machine.
- H. Be able to combine simple machines to make complex machines.

3. Understand the characteristics of light and color.

- A. Be able to identify the sources of light.
- B. Know how the reflection, absorption, and transmission of light affect an object's appearance.
- C. Know how flat and curved mirrors affect light.
- D. Know how objects refract light.
- E. Know why objects appear to have different colors.
- F. Know how white light is formed and explain what it is made of.

4. Understand the causes of the weather.

- A. Know how location affects weather (elevation, latitude, regions)
- B. Be able to state the sequence of the water cycle.
- C. Know how the angle of the sun affects weather.
- D. Know the layers of the atmosphere.
- E. Know basic cloud types.
- F. Know how air pressure, temperature, wind, and humidity affect weather.

Science Standards Fifth and Sixth Grade

1. Understand the processes that living things share.

- A. Know the methods that plants and animals use to get food.
- B. Be able to apply knowledge that all living things grow and/or regenerate cells.
- C. Be able to apply knowledge that cells are the basic unit of all living things.
- D. Be able to apply knowledge that all living things need air, food, and water.
- E. Be able to apply knowledge that all living things reproduce.
- F. Be able to apply knowledge that all living things release energy.
- G. Know basic processes of plants (photosynthesis, respiration, transpiration.)

2. Understand the concepts of force and motion.

- A. Know the terms motion, inertia, friction, buoyancy, and gravity.
- B. Know the difference between the types of motion.
- C. Know Newton's laws of motion.
- D. Know how friction may be useful and a problem.
- F. Know how everything is affected by gravity.

3. Understand the earth's surface and changes which affect it.

- A. Know the layers which form the earth's crust.
- B. Know characteristics of each layer.
- C. Be able to identify examples of various layers of the earth's crust.
- D. Know how the various layers were formed.
- E. Know how wind, water, time, and geological shifts affect the earth's surface.
- F. Know how humans change the earth's surface.

4. Be able to observe, classify, and explain the properties, states and changes of matter.

- A. Know the three states of matter.
- B. Know how matter can change.
- C. Know the movement of molecules in each state.
- D. Know the properties of each state of matter.
- E. Know that matter can be identified by its physical structure.
- F. Be able to use chemical reactions to identify different matter.

5. Be able to use the physical properties and chemical composition to classify rocks and minerals.

6. Understand how to plant and animal species interact with their environment.

- A. Know how energy flows through food chains and food webs.
- B. Know the cycles (water, carbon dioxide, nitrogen.)
- C. Know the factors that affect populations in a given environment (plant and animal responses and adaptations.)
- D. Know how organisms become extinct.

7. Understand the building blocks of matter (atoms, elements, molecules, compounds.)

- A. Know the parts of an atom (neutron, proton, and electron.)
- B. Know the terms atom, molecule, element, and compound.
- C. Know how elements are organized on a periodic chart.
- D. Know what chemical formulas and symbols are.
- E. Know the difference between a chemical and physical change.
- F. Know about acids and bases.

8. Understand the relationship between various bodies in the universe.

- A. Know the types of bodies in the solar system (sun, moon, planets, comets, asteroids, meteors.)
- B. Know the instruments used by astronomers (reflecting, refracting, and radio telescopes and spectroscopes.
- C. Know the life cycle of a star.
- D. Know the characteristics of quasars, pulsars, black holes, constellations, and galaxies.
- E. Know about the planets in our solar system (relation to sun and characteristics.)
- F. Know about space and human accomplishments (history of exploration, discoveries, help to humankind.)

9. Understand the basics of electricity (how generated, how conducted, uses, how transported, limitations, effects on environment.)

- A. Know static electricity and current electricity.
- B. Know the difference between conductors and insulators.
- C. Know the difference between open, closed, parallel, and series circuits.
- D. Know about our use of electricity.
- E. Know and use the terms of magnetism and electromagnetism.
- F. Know how a magnet works.